

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued December 15, 2000 Decided May 15, 2001

No. 99-1200

Appalachian Power Company, et al.,
Petitioners

v.

Environmental Protection Agency,
Respondent

Commonwealth of Pennsylvania,
Department of Environmental Protection, et al.,
Intervenors

Consolidated with 99-1205,
99-1206, 99-1246, 99-1266, 99-1285, 99-1289, 99-1291,
99-1292, 99-1293, 99-1295, 99-1299, 99-1300, 99-1301,
99-1303, 99-1304, 99-1306, 99-1307, 00-1013, 00-1021,
00-1022, 00-1024, 00-1038, 00-1042, 00-1050, 00-1071,

00-1074, 00-1077, 00-1083, 00-1087, 00-1088, 00-1096,
00-1097, 00-1098, 00-1099, 00-1102, 00-1103, 00-1105,
00-1106, 00-1107, 00-1108, 00-1109, 00-1110, 00-1113,
00-1114, 00-1119, 00-1122, 00-1123, 00-1125, 00-1128

On Petitions for Review of Orders of the
Environmental Protection Agency

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David P. Novello was on the brief of the Electric Generator intervenors.

Before: Williams, Ginsburg and Sentelle, Circuit Judges.

Opinion for the Court filed Per Curiam.*

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* Judge Williams wrote Parts II.C, III.B-C, and V; Judge Ginsburg wrote Parts II.A-B and II.D.5; Judge Sentelle wrote Parts I, II.D.1-4, II.E-F, III.A., and IV.

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PER CURIAM.

In response to petitions from several northeastern states that alleged that nitrogen oxide emitted in neighboring states was harming their local air quality, the Environmental Protection Agency promulgated a rule that requires many NOx-emitting facilities in several midwestern and southeastern states to conform to emission limits set by the EPA and to participate in an emissions trading program. Numerous petitioners challenge the rule as inconsistent with the Clean Air Act, arbitrary and capricious, and technically deficient. We uphold most aspects of the rule but remand several particulars to the Agency for reconsideration.

I. BACKGROUND

On January 18, 2000, the Environmental Protection Agency ("EPA") issued its final rule to control emissions of nitrogen

oxide ("NOx") under section 126 of the Clean Air Act ("CAA"). 42 U.S.C. s 7426. Under certain conditions, NOx combines with hydrocarbons in the atmosphere to create ozone, commonly known as "smog." In the January rule, the EPA made final its findings that stationary sources of NOx emissions in twelve upwind states and the District of Columbia contribute significantly to ozone nonattainment in northeastern states. This finding triggers direct federal regulation of stationary sources of NOx in the upwind states. The rule further established a "cap and trade" system for NOx emissions within each upwind jurisdiction. Covered sources must obtain NOx emission allowances to cover their emissions, adopt additional emission controls, or cease operations. Numerous petitions for review challenge various aspects of the rule.

A. Statutory Framework

Under the Clean Air Act, the EPA promulgates national ambient air quality standards ("NAAQS") for criteria air pollutants, including tropospheric ozone. See 42 U.S.C. s 7409. The EPA then designates those areas of the United States that fail to meet the various NAAQS. 42 U.S.C. s 7407(d). States, in turn, are required to adopt state implementation plans ("SIPs") providing for the attainment of the NAAQS. 42 U.S.C. s 7410. The SIPs are submitted to the EPA for approval, and may be revised at the EPA's insistence if found to be inadequate to ensure maintenance of the NAAQS or public health. States that fail to comply with these requirements are subject to various sanctions and the imposition of a Federal Implementation Plan ("FIP"). 42 U.S.C. s 7509.

Much air pollution is a local or regional problem. Some pollution, however, is caused or augmented by emissions from other states. Emissions from "upwind" regions may pollute "downwind" regions. Several provisions of the CAA are designed to address such transboundary air pollution. In

particular, section 110(a)(2)(D)(i)(I) of the Act requires states to prohibit emissions within the state in amounts that will "contribute significantly to nonattainment in, or interfere with maintenance by, any other State" of the NAAQS. 42 U.S.C. s 7410(a)(2)(D)(i)(I).

CAA section 126 provides a mechanism whereby downwind states may petition the EPA to directly regulate upwind sources of pollution. Under section 126(b), 42 U.S.C. s 7426(b), a downwind state "may petition the Administrator for a finding that any major source or group of stationary sources emits or would emit any air pollutant in violation" of CAA section 110(a)(2)(D). Once the EPA makes a section 126(b) finding, section 126(c) provides that:

it shall be a violation of this section and the applicable implementation plan in such State--

(1) for any major proposed new (or modified) source with respect to which a finding has been made under subsection (b) of this section to be constructed or to operate in violation [of this section or section 110], or

(2) for any major existing source to operate more than three months after such finding has been made with respect to it.

42 U.S.C. s 7426(c). The Administrator may allow the continued operation of existing sources beyond three months provided such sources comply with emission limitations and compliance schedules provided by the Administrator which "bring about compliance ... as expeditiously as practicable, but in no case later than three years after the date of such finding." Id.

At issue in this case is the extent of the EPA's authority to make findings and directly regulate sources in upwind states under section 126, and whether the EPA's section 126 rule was arbitrary and capricious or contrary to law.

B. The NOx SIP Call

In October 1998, the EPA issued a final rule calling upon twenty two states¹ and the District of Columbia to revise their ozone SIPs to address interstate air pollution (aka "interstate transport"). See Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone, 63 Fed. Reg. 57,356 (1998) ("NOx SIP Call"). Concluding that upwind states contribute significantly to ozone nonattainment problems in downwind states, the EPA required each jurisdiction to promulgate a new SIP to reduce NOx emissions. This "NOx SIP call" required states to reduce NOx emissions by the amount that could be accomplished by emission controls capable of reducing emissions at a cost of \$2,000 or less per ton. Under the rule, revised SIPs were due by September 30, 1999, and SIP provisions covering stationary sources had to be implemented by May 1, 2003. Failure to submit an adequate NOx SIP by the deadline would result in implementation of a FIP by the EPA. In other words, if the states do not submit a plan for meeting their CAA obligations, the EPA will impose one of its own.

C. The Original Section 126 Rule-Conditional Findings

In August 1997, eight states submitted petitions requesting that the EPA find that stationary sources in upwind states contribute significantly to downwind air pollution. Specifically, the petitioning states sought findings pursuant to CAA section 126(b), 42 U.S.C. s 7426(b), that specified sources or categories thereof are the source of NOx emissions that

¹ The states are Alabama, Connecticut, Delaware, Georgia, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Michigan, Missouri, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia, West Virginia, and Wisconsin.

contribute significantly to ozone nonattainment in the petitioning states in violation of CAA section 110(a)(2)(D). 42 U.S.C. s 7410(a)(2)(D). Each petition further sought to have the EPA implement direct federal regulation of stationary sources in upwind states, primarily electric generating facilities and fossil-fuel fired industrial boilers and turbines. Because the section 126 petitions raised many of the same issues as the NOx SIP call, and would require comparable emission reductions, the EPA coordinated its response to the section 126 petitions with the NOx SIP call rulemaking.

In a final rule published on May 25, 1999, the EPA determined that NOx emissions in twelve states and the District of Columbia contribute significantly to non-attainment of the one-hour ozone NAAQS in Connecticut, Massachusetts, New York, and Pennsylvania. Findings of Significant Contribution and Rulemaking on Section 126 Petitions for Purposes of Reducing Interstate Ozone Transport, 64 Fed. Reg. 28,250 (May 25, 1999) ("May 1999 Rule"). The twelve states are Delaware, Indiana, Kentucky, Maryland, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Virginia, and West Virginia.

Rather than make section 126 findings at that time, however, the EPA determined that it was appropriate to postpone such findings pending the resolution of the NOx SIP call process. Accordingly, the EPA issued a rule providing that the findings would automatically be deemed made with regard to sources from a given state should that state fail to comply with a NOx SIP call deadline. The EPA based this decision on the judgment that full compliance with the NOx SIP call would obviate the need for section 126 findings. Once made, the section 126 findings would require covered sources to come into compliance no later than May 1, 2003. Sources that failed to comply by that date would be required to cease operations.

D. Revised Section 126 Rule-Final Findings

Subsequent to the completion of the section 126 rulemaking,² this court issued two orders which caused the EPA to change course. First, on May 14, 1999 this court remanded the EPA's proposed revisions to the ozone NAAQS. *American Trucking Ass'ns v. EPA*, 175 F.3d 1027, reh'g granted in part and denied in part, 195 F.3d 4 (D.C. Cir. 1999), rev'd in part sub nom. *Whitman v. American Trucking Ass'ns*, 121 S. Ct. 903 (2001). Second, this court issued an order staying the NOx SIP call deadline. *Michigan v. EPA*, No. 98-1497 (D.C. Cir. May 25, 1999) (order granting stay in part).

In response to these orders, the EPA revised the section 126 rule. Findings of Significant Contribution and Rulemaking on Section 126 Petitions for Purposes of Reducing Interstate Ozone Transport, 65 Fed. Reg. 2674 (Jan. 18, 2000) ("Jan. 2000 Rule"). In particular, the EPA made the requested findings of significant contributions, granting the relevant portions of the section 126 petitions and delinking the section 126 findings from compliance with the NOx SIP call. The EPA explained that it was "implementing the requirements of section 126 of the CAA in the absence of any currently effective requirement for upwind States to address the interstate pollution transport problems themselves." *Id.* at 2683. Instead, the EPA's new rule contained a provision to withdraw the relevant findings upon approval of a NOx SIP in accordance with the October 1998 NOx SIP call.

As with the NOx SIP call, the EPA considered both NOx emissions and the cost of control in determining which sources contribute significantly to downwind ozone nonattainment. Based upon its analysis of the cost of emissions controls, the EPA concluded that measures which can reduce NOx emissions for \$2,000 or less per ton are highly cost-

² Although published on May 25, the initial section 126 rule was signed by the Administrator on April 30, 1999. See May 1999 Rule, 65 Fed. Reg. at 28,318.

effective. May 1999 Rule, 64 Fed. Reg. at 28,299. The EPA then divided NOx emission sources into various categories and determined the level of emission reduction that would be highly cost-effective for each category. Id. at 28,300-01.

The section 126 rule also established an emission allowance "cap and trade" program, known as the Federal NOx Budget Trading Program. Under this program, originally outlined in the May 1999 rule, regulated sources are allocated tradeable NOx emission allowances and are prohibited from emitting more NOx than the amount of allowances held. If a facility emits more than its initial allowance allocation, it must purchase additional allowances from another facility, reduce its emissions, or cease operations. Jan. 2000 Rule, 65 Fed. Reg. at 2733.

To determine the initial allocations, the EPA established a NOx emission cap for each upwind state. Each state's cap is based upon expected emission reductions from highly cost-effective controls in that state as of 2007. Id. at 2698. Ninety-five percent of each state's cap is allocated proportionally among existing sources based upon each facility's heat input. Five percent of the cap is set aside for future, as-yet-unproposed sources. Id. at 2698-99. These initial allocations will apply for the 2003-07 time period. Id. at 2700. The EPA will issue revised allocations for the 2008-12 time period, and every five years thereafter. Id.

Since the issuance of the final section 126 rule, this Court has ruled on various challenges to the EPA's NOx SIP call. In *Michigan v. EPA*, 213 F.3d 663 (D.C. Cir. 2000), we upheld the SIP call in most respects, remanding portions of the rule to the EPA. Of greatest relevance to these proceedings, we upheld the EPA's analyses of interstate transport of NOx emissions and its use of cost-effectiveness criteria in determining which upwind sources "contribute significantly" to nonattainment in downwind states. Subsequently, we en-

tered an order amending the deadline for full implementation of NOx SIP revisions from May 1, 2003 to May 31, 2004. Michigan v. EPA, No. 98-1497, 2000 WL 1341477 (D.C. Cir. Aug. 30, 2000) (order denying motion to stay mandate pending petition for certiorari).

After the EPA published the final section 126 rule in January 2000, numerous groups petitioned this Court for review. Among the petitioners are a group of upwind states from the midwestern and southeastern United States ("MW & SE State Petitioners"); utilities and other operators of electric generating facilities ("Non-State Petitioners"); companies that operate non-electric generating/industrial facilities ("Non-EGU Petitioners"); and several individual companies that have facility-specific concerns ("Facility-Specific Petitioners"). A group of northeastern states ("NE State Petitioners") also petitioned for review alleging that the EPA's rule did not go far enough in controlling upwind NOx emissions. The northeastern states otherwise intervened in support of the EPA, as did a group of environmental organizations. The various petitions for review were consolidated into this case.

II. COMMON AND GENERAL ISSUES

A. Scrivener's Error

The Clean Air Act Amendments of 1990 eliminated a subsection of s 110 of the Clean Air Act ("CAA"), causing s 110(a)(2)(E) to be renumbered as s 110(a)(2)(D). See Clean Air Act, Pub. L. No. 101-549, sec. 101(b), s 110(a)(2)(D), 104 Stat. 2399, 2404 (1990) (codified at 42 U.S.C. s 7410(a)(2)(D)). The Amendments correspondingly updated several references to s 110(a)(2)(E)(i) that had appeared in s 126 of the Clean Air Act, but changed them to read "section 110(a)(2)(D)(ii)." See Clean Air Act, Pub. L. No. 101-549, sec. 109(a), s 126(b)-(c), 104 Stat. at 2469-70 (codified at 42 U.S.C. s 7426). The 1990 Amendments thus not only substituted "(D)" for "(E)" in s 126, as necessitated

by the renumbering, but also substituted "(ii)" for "(i)." The EPA, which contends that the Congress amended s 126 only in order to update the cross-references so as to preserve the status quo ante, claims that this substitution of "(ii)" for "(i)" was "inadvertent[]" May 1999 Rule, 64 Fed. Reg. at 28,267/3. The agency therefore construes s 126 as if this "inadvertence" had not occurred, i.e., as if that section referred to s 110(a)(2)(D)(i). See id. The Non-State Petitioners, by contrast, argue that s 126 should be read as written, that is, to refer to s 110(a)(2)(D)(ii).

Section 126 gives a state the right to petition the EPA to find "that any major source or group of stationary sources [in another state] emits or would emit any air pollutant in violation of the prohibition of" a subsection of s 110(a)(2)(D), the subsection here at issue. 42 U.S.C. s 7426(b). As we have noted, the ability of such a source or group of sources to operate is severely constrained once such a finding is made. 42 U.S.C. s 7426(c). The constraints in s 126(c) are triggered by the "prohibition" in whichever subsection of s 110(a)(2)(D) it is that s 126 cross-references. Section 110(a)(2)(D) provides that a state implementation plan ("SIP"), which describes how a state plans to comply with the National Ambient Air Quality Standards ("NAAQS"), must

(D) contain adequate provisions--

(i) prohibiting ... any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will--

(I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect [to the NAAQS] or

(II) interfere with [various other] measures.

(ii) insuring compliance with the applicable requirements of sections 7426 [CAA s 126] and 7415 [CAA s 115] of this title (relating to interstate and international pollution abatement).

42 U.S.C. s 7410(a)(2)(D). Thus, prior to the 1990 Amendments, s 126 provided an avenue by which a state could

compel the EPA to enforce emissions limitations upon a neighboring state the emissions from which contributed to its own nonattainment of the NAAQS. The EPA argues that s 126 should still be read to have this effect, notwithstanding the substitution of "(ii)" for "(i)" therein.

Reading a statute contrary to its seemingly clear meaning is permissible "[i]f 'the literal application of a statute will produce a result demonstrably at odds with the intentions of its drafters.'" *Mova Pharm. Corp. v. Shalala*, 140 F.3d 1060, 1068 (D.C. Cir. 1998) (quoting *United States v. Ron Pair Enterprises*, 489 U.S. 235, 242 (1989)). We will not, however, invoke this rule to ratify an interpretation that abrogates the enacted statutory text absent an extraordinarily convincing justification:

[T]he court's role is not to "correct" the text so that it better serves the statute's purposes, for it is the function of the political branches not only to define the goals but also to choose the means for reaching them.... Therefore, for the EPA to avoid a literal interpretation at Chevron step one, it must show either that, as a matter of historical fact, Congress did not mean what it appears to have said, or that, as a matter of logic and statutory structure, it almost surely could not have meant it.

Engine Mfrs. Ass'n v. EPA, 88 F.3d 1075, 1089 (D.C. Cir. 1996). The EPA's reading of the reference in s 126 to s 110(a)(2)(D)(ii) to mean s 110(a)(2)(D)(i) meets this test. The cross-references to s 110(a)(2)(D)(ii) that appear in s 126 clearly do not reflect the intent of the Congress. Although the cross-references as written "point[] in one direction, all the other evidence from the statute points the other way," United States Nat'l Bank of Oregon v. Independent Ins. Agents of America, Inc., 508 U.S. 439, 455 (1993). See Thomas W. Merrill, Golden Rules for Transboundary Pollution, 46 Duke L.J. 931, 955 n.124 (1997) ("[S]ection 126(b) contains what appears to be a typographical error which, if read literally, would render the EPA's obligation to make [a s 126] finding meaningless").

For example, although s 126 twice refers to the "prohibition of section 7410(a)(2)(D)(ii) [CAA s 110(a)(2)(D)(ii)]," there is no literal "prohibition" in that section--whereas there is in s 110(a)(2)(D)(i) ("prohibiting ... any source"). The petitioners dismiss this point, arguing that "prohibition" is not a term of art and that it easily embraces the directive of s 110(a)(2)(D)(ii) to "insur[e] compliance with the applicable requirements of sections 7426 [CAA s 126] and 7415 [CAA s 115]." For support, the petitioners note that the third and final reference to s 110 in s 126 refers to the "requirements contained in section 7410(a)(2)(D)(ii) [CAA s 110(a)(2)(D)(ii)]." 42 U.S.C. s 7426(c). Although the "requirements" of these sections certainly include some "prohibitions," the petitioners' argument that the two terms are "interchangeabl[e]" stretches the ordinary meaning of the term "prohibition." It does not, however, stretch that meaning beyond recognition. Taken alone, therefore, the usage is insufficient to prove the agency's claim of scrivener's error; in conjunction with the other evidence described below, however, it lends credence to the view that such an error indeed was made.

A similar analysis applies to the observation that s 126 as written creates a circular cross-reference: both s 126(b) and s 126(c) refer to the "prohibition" or "requirements" of s 110(a)(2)(d)(ii), which in turn mandates compliance with "the applicable requirements of [CAA s 126]." Although a fully circular cross-reference would be absurd, the petitioners note that s 110(a)(2)(d)(ii) refers to s 126 in its entirety, rather than to ss 126(b) and (c) alone; it thus includes the requirement of s 126(a) that a state's SIP provide for notifying its neighbors of any major proposed new source that might affect their air quality adversely, see 42 U.S.C. s 7426(a). This reading is not unreasonable. Cf. *Connecticut v. EPA*, 656 F.2d 902, 907 (2d Cir. 1981) ("When [CAA s 110(a)(2)(D)(ii)] requires an SIP to insure compliance with s 126, it clearly refers to subsection (a) [of s 126] only and not to the petition procedure set forth in subsection (b)"). A statute that incorporates a cross-reference that is only partially circular is not for that reason absurd, although--as in this case--such a reference may make the statute sufficiently

convoluted to warrant searching for a less infelicitous construction.

It is impossible to accept, however, that the Congress intended simultaneously to repeal the regulatory regime that had existed before the 1990 Amendments and to replace it with the one that the petitioners describe. See *Nat'l Bank of Oregon*, 508 U.S. at 454 (eschewing "purported plain-meaning analysis" of statute as written when scrivener's error has "distort[ed] a statute's true meaning"); *id.* at 461 n.10 (holding theory of scrivener's error constituted "best reading" of statute notwithstanding that statute as written could be coherently explained). Before the 1990 Amendments--and still today, under the EPA's reading--s 126 provided a mechanism by which a state could compel the EPA to control emissions from sources in a neighboring state that contributed to the complaining state's nonattainment of the NAAQS. See 42 U.S.C. s 7426(b)-(c). The petitioners argue that, by substituting "(ii)" for "(i)" in the cross-references of s 126, the Congress intended to withdraw the state's right to force the hand of the EPA when emissions from a neighboring state contributed to its own violation of the NAAQS, and simultaneously to create a right by which a state may compel such enforcement when a neighboring state fails to meet "the requirements of [42 U.S.C. ss] 7426 and 7415 of this title [CAA ss 126 and 115] (relating to interstate and international pollution abatement)." 42 U.S.C. s 7410(a)(2)(D)(ii).

This reading makes no sense of either s 126 or s 115. As we have noted, in order to avoid circularity, the petitioners suggest that the reference to s 126 in s 110(a)(2)(d)(ii) refers only to the notification requirements of s 126(a). According to the petitioners' reading, the 1990 amendment of ss 126(b) and (c) gave each state the right to compel enforcement against another state that fails to provide notice of new sources and took away their right to compel enforcement against a state that actually pollutes the complaining state's air. Even were we to assume that such a counterintuitive switch from substantive to procedural compliance could plausibly reflect congressional policy, the petitioners' reading would still be flawed. Section 126(b) permits a state to

petition the EPA to find that "any major source or group of stationary sources emits or would emit any air pollutant in violation of the prohibition of section 7410(a)(2)(D)(ii) [CAA s 110(a)(2)(D)(ii)]." 42 U.S.C. s 7426(b). The notice requirement of s 126(a), to which the petitioners claim this reference ultimately points, binds states only to warn their neighbors of proposed new and modified sources; it does not restrict the behavior of sources or groups of sources, whose "violation" of s 110(a)(2)(D) is the predicate for a s 126(b) finding. See *id.* s 7426(a).

For s 126 to incorporate the reference of s 110(a)(2)(d)(ii) to s 115 is similarly anomalous. Section 115 allows a foreign nation affected by a state's emissions to complain to the EPA, which can then require the state to revise its SIP. 42 U.S.C. s 7415. According to the petitioners, the 1990 Amendments created a new right whereby a state may compel enforcement against a neighboring state polluting a foreign country, while simultaneously abrogating that state's preexisting right to compel enforcement against a neighboring state polluting the complaining state. That any state would be empowered to trump the EPA's discretion in an international dispute to which it is not a party--even as it lost the power to address another state's pollution of its own air--cannot be taken to express congressional intent if there is any plausible alternative reading of the statute.

The petitioners' suggestion that the enactment of ss 176A and 184, 42 U.S.C. ss 7506a, 7511c, as part of the 1990 Amendments somehow mitigates these problems is without foundation. Those sections authorize the EPA to designate a multistate "transport region" in a case where one state's emissions affect another state's attainment of the NAAQS; for each such region, the EPA must convene a "transport commission," including officials from each state within the region, to advise the EPA Administrator. *Id.* The petitioners correctly describe these new sections as establishing, at least in part, a new approach to interstate air pollution. Because the Congress did not repeal s 126, however, this new approach was clearly not meant to be exclusive; and neither

s 176A nor s 184 renders the change in s 126 from "(i)" to "(ii)" any less linguistically or substantively anomalous.

Even if the Congress had simultaneously enacted ss 176A, 184 and 126 as written, we might not embrace the petitioners' reading. See *Environmental Defense Fund, Inc. v. EPA*, 82 F.3d 451, 468 (D.C. Cir. 1996) (refusing to construe a statute literally in order to avoid "absurd and futile results"). This case, however, is much clearer: the EPA has demonstrated not only that s 126 as written is at odds with congressional intent; it also offers a convincing account of how it came to be enacted nevertheless. We find it quite plausible that the Congress substituted "(ii)" for "(i)" in s 126 inadvertently in the course of a routine renumbering of statutory cross-references. Cf. *In re Chateaugay Corp.*, 89 F.3d 942, 953-54 (2d Cir. 1996) (accord regarding a post-amendment renumbering of the bankruptcy code).

Because the EPA has established that the "seemingly clear statutory language does not reflect the 'unambiguously expressed intent of Congress,'" *Mova*, 140 F.3d at 1068 (quoting *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842 (1984)), we proceed under Chevron step two to consider whether the EPA's construction of s 126 is reasonable. Lest it "obtain a license to rewrite the statute," *id.*, however, we do not give an agency alleging a scrivener's error the benefit of Chevron step two deference, by which the court credits any reasonable construction of an ambiguous statute. Rather, the agency "may deviate no further from the statute than is needed to protect congressional intent." *Id.* By reading s 126 to refer to s 110(a)(2)(D)(i)--thus restoring it to the meaning it had before the 1990 Amendments, as the Congress almost certainly intended--the EPA in no way overreaches; we therefore accept its reading.³

³ In the alternative, the petitioners suggest that the reference in s 126 to s 110(a)(2)(D)(ii) may have stemmed from a different error than that posited by the EPA; perhaps, they argue, the Congress intended to refer not to s 110(a)(2)(D)(i) but to s 110(a)(2)(D)(i)(II). This construction is less plausible than the

B. The NOx SIP Call and s 126

The Administrator of the EPA must require a state to revise its SIP "as necessary" whenever she finds such a plan "substantially inadequate to ... comply" with various requirements of the Act, including the requirement that the plan "contain adequate provisions" to prevent sources within a state from contributing significantly to any other state's nonattainment or nonmaintenance of the NAAQS. *Id.* ss 7410(a)(2)(D)(i)(I), 7410(k)(5). Pursuant to this authority, in October 1998 the EPA issued a request for SIP revisions, or a "SIP call," that required 22 states and the District of Columbia to revise their SIPs in order to mitigate the interstate transport of ozone. *Michigan v. EPA*, 213 F.3d 663, 669 (D.C. Cir. 2000) (explicating NOx SIP Call, 63 Fed. Reg. at 57,358-59). This court upheld the essential elements of the NOx SIP call in March 2000, although we remanded the rule for further proceedings with regard to three states and to certain types of sources. *Id.* at 695.

In August 1997, during the preparation of the NOx SIP call, eight states petitioned the EPA to find, pursuant to CAA s 126(b), that "major stationary sources or groups of sources" in specified states were contributing to the petitioning states' failure to meet the NAAQS for ozone. 42 U.S.C. s 7426(b). In the first of the two rules challenged here, the EPA announced that because it was "operating on basically the same set of facts" in making determinations under s 126 as it had when it issued the NOx SIP call--that is, facts showing

EPA's for the simple reason that the EPA's reading restores the statute to its unarguably coherent, pre-Amendment form. In any event, when "there are multiple ways of avoiding a statutory anomaly, all equally consistent with the intentions of the statute's drafters (and equally inconsistent with the statute's text)," we accord standard Chevron step two deference to an agency's choice between such alternatives. See *Mova*, 140 F.3d at 1068.

that upwind sources contributed to downwind nonattainment of the NAAQS--it would eschew making formal findings under s 126. May 1999 Rule, 64 Fed. Reg. at 28,274/3, 28,275/2. Instead, the agency made the "affirmative technical determination" that sources in upwind states were contributing to nonattainment in downwind states, and provided that a formal finding to that effect under s 126 would be

deemed to be made for such sources in a state if by May 1, 2000, EPA has not either (a) approved a state's SIP revision to comply with the NOx SIP call or (b) promulgated implementation plan provisions meeting the [CAA] section 110(a)(2)(D)(i) requirements.

Id. at 28,275/2.

The EPA used this "automatic trigger mechanism," Jan. 2000 Rule, 65 Fed. Reg. at 2679/1, as part of a "coordinated approach" to the SIP call and the s 126 petitions, May 1999 Rule, 64 Fed. Reg. at 28,275/3: s 126 findings would be withheld until the conclusion of the SIP call, but would be entered automatically should a state's response to the SIP call be either unsatisfactory or untimely. May 1, 2000 was chosen as the date for triggering the s 126 finding because s 126(c) allows the EPA to permit sources found to contribute to another state's nonattainment to continue to operate for no more than three years after the date of such a finding. 42 U.S.C. s 7426(c). For findings made on May 1, 2000, the three-year clock would expire on May 1, 2003--the same date by which states were required to have implemented controls over sources of interstate ozone under the original NOx SIP call. See NOx SIP Call, 63 Fed. Reg. at 57,308/1.

The congruence between the two schedules was disrupted by an order of this court staying the EPA's original SIP call

deadline. See *Michigan v. EPA*, No. 98-1497 (D.C. Cir. May 25, 1999); see also *Michigan v. EPA*, No. 98-1497, 2000 WL 1341477 (D.C. Cir. Aug. 30, 2000) (ordering new deadline of May 31, 2004 for implementation of SIPs that are revised pursuant to the SIP call). The extended timetable for the SIP call led the EPA to determine that "the circumstances under which the linkage between action on the section 126 petitions and the NOx SIP call was appropriate are no longer present." Jan. 2000 Rule, 65 Fed. Reg. at 2680/1; see also *id.* at 2676/2. The EPA therefore abandoned the automatic trigger mechanism and instead simply made the s 126 findings. See *id.* at 2679/1.

The EPA maintains that its approach is necessitated by the "language and purposes of section 126" and that it is consistent with "the language of section 110, the cooperative federalism structure of title I of the CAA, [and this] court's decision to stay the deadlines for States to submit SIP revisions under the NOx SIP call." *Id.* at 2680/1. The MW & SE State and Non-State Petitioners disagree. They argue that ss 110 and 126 require the agency to refrain from making any s 126 findings while the NOx SIP call is ongoing, and that a similar constraint is imposed by the doctrine of "cooperative federalism" that this court has recognized as being embodied in the Act.

Once the "prohibition" to which s 126 refers is understood as the "functional prohibition" upon emissions of pollutants that subsequently cross state lines, the petitioners can find little support for their position by parsing ss 110 and 126.4 The Non-State Petitioners argue that

4 The EPA may make findings under s 126 only if a major source or group of sources is in "violation of the prohibition of [s 110(a)(2)(D)(i)]." 42 U.S.C. s 7426(b). The petitioners might have argued, therefore, that because s 110(a)(2)(D) requires a SIP to "contain adequate provisions prohibiting" interstate emissions,

[a]t a time when the relevant States were under a legal obligation to adopt "adequate [SIP] provisions" to control NOx emissions found by EPA to significantly contribute to ozone nonattainment--and at a time when States had not defaulted on that obligation--EPA lacked the authority to determine that those same States' NOx emission sources were "in violation" of that same prohibition.

Non-State Petitioners Br. at 29. This statement lacks a logical basis. It is entirely reasonable for the EPA to regard a state that is under a legal obligation to revise its plan as being, in the meantime, in violation of a functional prohibition.

The petitioners' primary argument, therefore, is that Title I of the Clean Air Act is animated by a commitment to "cooperative federalism" under which the EPA is to determine what level of air quality is required but must defer in the first instance to the judgments of the states regarding how to achieve that level. This principle, according to the petitioners, requires that a SIP call inviting states to respond to the problem of interstate transport be the preferred remedy, while direct federal regulation of sources, as authorized by s 126, must be a last resort reserved for cases in which states cannot or do not meet their SIP obligation.

In Michigan this court assessed the legality of the emissions budgets that the EPA assigned to each state as part of

the "prohibition of [CAA s 110(a)(2)(D)(i)]" in s 126 refers only to restrictions upon emissions incorporated into state or federal implementation plans prepared pursuant to s 110(a)(2)(D). When this argument was raised during the rulemaking, the EPA rejected it in favor of the view that "prohibition" means "the actual functional prohibition of section 110(a)(2)(D)(i), which bars impermissible state transport, rather than the specific provisions through which states implement that prohibition ... in an approved SIP." May 1999 Rule, 64 Fed. Reg. at 28,272/2. No petitioner, however, argued the former view in its opening brief, and we therefore need not decide it.

the NOx SIP call with respect to what we called the "Train-Virginia federalism bar." 213 F.3d at 687. We referred there to our holding in *Virginia v. EPA*, 108 F.3d 1397, 1408, modified on other grounds, 116 F.3d 499 (1997), that under s 110 each state retains the power, in its SIP, to determine how it will achieve the NAAQS, and that the EPA may not dictate to a state a particular "source-specific means" to that end, a proposition for which we relied upon *Train v. Natural Resources Defense Council, Inc.*, 421 U.S. 60, 79 (1975). This principle, of course, cannot be absolute in the face of s 126, which contemplates that in at least some circumstances the EPA will directly regulate sources within a state. See 42 U.S.C. s 7426(c). Neither *Train* and *Virginia* nor *Michigan* considered the interaction of their holdings with s 126, but in its 1999 rule the EPA noticed the tension between s 126 and the *Train-Virginia* line of cases, and properly sought to accommodate the two:

Section 126 is somewhat unusual in Title I [of the CAA] in that it authorizes EPA to control sources directly, rather than providing a means for EPA to encourage states to control those sources. In that sense, it is similar to the provisions for federal implementation plans in section 110(c). With both of these provisions, Congress provided tools for direct federal action to address serious failures of state action. Nevertheless, Congress' clear preference throughout Title I is that states are to decide and plan how they will control their sources of air pollution.

May 1999 Rule, 64 Fed. Reg. at 28,273/2. This analysis led the EPA to adopt the automatic trigger approach during the pendency of the NOx SIP call.

The petitioners contend that the delay in the NOx SIP call deadline, because it did not affect the "Congress' clear preference" for state implementation decisions, should not have

5 *Train*, of course, was decided before s 126 was enacted.

altered the EPA's determination that the SIP call takes precedence over s 126. The EPA, however, is obligated not only to give to s 110 a meaning that is consistent with Train and Virginia, but also reasonably to construe s 126. The EPA, which considers the two provisions to be "independent statutory tools to address the problem of interstate pollution transport" that the EPA may deploy either singly or in tandem, Jan. 2000 Rule, 65 Fed. Reg. at 2680/1, reasonably construes both provisions.

The EPA's view accords with the position of the Second Circuit which, in *Connecticut v. EPA*, was presented with the converse of the question before us: Do ss 110 and 126 require the EPA to postpone its approval of SIP revisions pending its final action upon petitions for findings under s 126(b)? 656 F.2d at 906-08. Although the Connecticut court suggested that "s 126(b) appears to have been primarily designed as a means for resolving interstate pollution disputes in situations where an SIP is not being revised," id. at 907--a dictum in some tension with the EPA's view that s 126 is "independent" of the SIP revision process--the Second Circuit's point was only that the EPA need not, upon receipt of a s 126 petition, suspend the SIP revision process. The court therefore concluded, properly we think, that "[a]s the substantive inquiry for decision is the same in both [s 110 and s 126] proceedings, an argument that one proceeding must be completed as a prerequisite to a final decision in the other makes no sense." Id. at 907; see also id. at 908 n.4 (quoting statement of H.R. Rep. No. 95-249, at 331, reprinted in 4 A Legislative History of the Clean Air Act Amendments of 1977, at 2798 (1978), that "the s 126(b) process is designed to provide an 'entirely alternative method and basis for preventing and abating interstate pollution' ") (emphasis omitted).

By contrast, three critical provisions of s 126 would lose their force if, as the petitioners suggest, the lengthened timetable of the NOx SIP call were to suspend the s 126 process. First, s 126 emphatically requires that any source

found to contribute to downwind nonattainment may in no event be permitted to operate for more than three years after such finding. See 42 U.S.C. s 7426(c). Second, under s 126 "[r]elief does not depend upon any action by the upwind states, as is necessary for a SIP revision." May 1999 Rule, 64 Fed. Reg. at 28,264/2. Third, relief under s 126 is independent also of the discretionary policy preferences of the EPA; the agency must act upon a request for a s 126 finding within 60 days. See 42 U.S.C. s 7426(b). Under the EPA's approach, of course, s 126 retains each of these features. See, e.g., Jan. 2000 Rule, 65 Fed. Reg. at 2681/1 ("Congress provided section 126 to downwind states as a critical remedy to address pollution problems ... otherwise beyond their control, and EPA has no authority to refuse to act under this section").

The petitioners argue, however, that the EPA's construction deprives s 110 of its force because it constrains the development of the SIP: sources subject to a s 126 finding will be bound by emissions limitations set by the agency, see 42 U.S.C. s 7426(c), and by the emissions trading program, see Part II.D below, even if the state in which they are located prefers to regulate different sources or to use different methods to mitigate downwind nonattainment. The petitioners argue that such constraints violate s 110 as interpreted in Virginia, but they plainly do not. In Virginia, this court disapproved the EPA's plan to reject SIPs that did not incorporate particular limits upon emissions from new cars; we held that the EPA may not, as part of the "section 110 process," intervene in a state's choice of how to reach the NAAQS. 108 F.3d at 1410; cf. id. at 1406 (question is what is permissible "under section 110"). We did not suggest that under s 110 states may develop their plans free of extrinsic legal constraints. Indeed, SIP development, like any environmental planning process, commonly involves decisionmaking subject to various legal constraints. That s 126 imposes one such limitation--and it is surely not the only independent provision of federal law to do so--does not affect a state's discretion under s 110.

The MW & SE State Petitioners argue in the alternative that, if ss 110 and 126 are independent, then the EPA may select either one but cannot impose s 126 findings and a SIP call simultaneously. Neither the statute nor the states' brief offers support for this suggestion, and the states' suggestion that the EPA embraced it in the preamble to its second rule is without foundation. Because it is reasonable, and because the "Congress provided both [ss 110 and 126] without indicating any preference for one over the other," Jan. 2000 Rule, 65 Fed. Reg. at 2680/1, the EPA's conclusion that these two provisions operate independently merits our deference under Chevron step two. See *Chevron*, 467 U.S. at 843.

Finally, we note that the MW & SE State Petitioners object to the EPA's construction of 40 C.F.R. s 52.34(i), which provides that s 126 findings will be withdrawn if the EPA takes "final action" to approve a SIP or impose a FIP that will control NOx emissions that contribute to downwind nonattainment. See 40 C.F.R. s 52.34(i) (2000), promulgated at 65 Fed. Reg. at 2727. Although the rule contains no date, the agency avers that it will apply the rule only to SIPs or FIPs adopted before May 1, 2003, the s 126 deadline.

The Supreme Court recently held that we should not defer to an agency's interpretation imputing a limiting provision to a rule that is silent on the subject, lest we "permit the agency, under the guise of interpreting a regulation, to create de facto a new regulation." *Christensen v. Harris County*, 529 U.S. 576, 588 (2000). The Court, however, carefully limited this principle to cases in which the agency's interpretation postdated its adoption of the rule and was not itself "subject to the rigors of ... notice and comment." *Id.* (citing *Reno v. Koray*, 515 U.S. 50, 61 (1995)). We therefore continue to grant "a high degree of deference" to an interpretation that the agency promulgates contemporaneously with its own regulation, affirming it "unless it is plainly erroneous or inconsistent with the regulation." *Jersey Shore Broad. Corp. v. FCC*, 37 F.3d 1531, 1536 (D.C. Cir. 1994).

Here the agency contends that it imputed a date to s 52.34(i) not post hoc but "[t]hroughout the Section 126 rulemaking." Although the date might better have been made explicit in the preamble to the rule, the agency did clearly, albeit implicitly, assume that s 52.34(i) would apply only to SIPs promulgated before the s 126 deadline. This is evident from the agency's express reservation for another rulemaking of the question whether it would "automatically withdraw the section 126 findings upon EPA approval of a later SIP revision." Jan. 2000 Rule, 65 Fed. Reg. at 2683/2. A contrary interpretation, moreover, would apparently create a conflict between s 52.34(i) and the s 126 deadlines, the sanctity of which the EPA emphasized throughout its rulemaking. Because the EPA appears ever since the rule was promulgated to have interpreted s 52.34(i) to apply only to SIPs approved before May 1, 2003, and because this interpretation is not "plainly erroneous or inconsistent with the regulation," *Jersey Shore*, 37 F.3d at 1536, we defer to the agency's view.

C. Significant Contribution

Non-State Petitioners challenge the methodology by which EPA reached its findings of "significant contribution" to nonattainment of the "1-hour" ozone rule under s 126, 42 U.S.C. s 7426. EPA started with the two-step method that it had used in issuing the SIP call and that we upheld in *Michigan v. EPA*, 213 F.3d 663, 674-80 (D.C. Cir. 2000). As we explained there, EPA first performed computer modeling to determine whether a state's manmade NO_x emissions perceptibly hindered a downwind state's attainment. *Id.* at 675. For any state exceeding EPA's threshold criteria, EPA then defined as "significant" those emissions that could be eliminated through application of "highly cost-effective" controls, namely measures costing no more than \$2,000 per ton of NO_x removed. *Id.* Similarly, EPA relied here on the state-wide threshold findings made in the SIP call and then applied the same cost-effectiveness criterion to determine which sources to include. See Findings of Significant Contribution and Rulemaking on Section 126 Petitions for Purposes of

Reducing Interstate Ozone Transport, 63 Fed. Reg. 56,292, 56,301/3 (proposed Oct. 21, 1998) ("Oct. 1998 Rule").

As discussed above, see *supra* Part II.B, both the SIP call and the s 126 rulemaking are directly linked to the requirement under s 110(a)(2)(D)(i) that SIPs contain provisions prohibiting "any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will ... contribute significantly to nonattainment...." s 110(a)(2)(D)(i), 42 U.S.C. s 7410(a)(2)(D)(i). But the necessary determinations are different in at least two material respects. First, whereas the SIP call exercise yielded a total amount of NOx cutback for each state, which the state was then free to achieve however it might, see *Michigan*, 213 F.3d at 687-88, here the mandate applies directly to sources. Second, whereas s 110(a)(2)(D)'s broad reference to "any source or other type of emissions activity" supported SIP call findings based on aggregate emissions from within each regulated state, s 126 demands that the significant contribution come from a "major source or group of stationary sources." 42 U.S.C. s 7426(b) (emphasis added).

The Non-State Petitioners argue that this latter distinction renders EPA's reliance on the SIP call findings inadequate; the findings based on all emissions can't determine whether stationary source emissions are sufficient. Instead of using those findings, petitioners argue, EPA needed first to make the more rigorous finding that the specified stationary sources within a given state independently met its threshold test for effect on downwind nonattainment.

Petitioners find support for their view of the statute in *Michigan*, where we said that the first step in EPA's s 110(a)(2)(D)(i) finding must show a "measurable contribution" to downwind nonattainment. 213 F.3d at 683-84. Here, EPA did not purport to satisfy such a standard on the basis of the covered stationary sources alone. Rather, it

conceded, "[i]t is conceivable that modeling only the emissions from the section 126 sources would result in smaller ambient impacts downwind [compared to total man-made emissions], and.... those smaller impacts, if analyzed on the basis of the metrics and thresholds developed for State-wide [total man-made] emissions, may not exceed those thresholds." May 1999 Rule, 64 Fed. Reg. at 28,283/1.

EPA defended its approach both as a recognition of the fact that the ozone problem is due to the accumulation of emissions and as a sensible reconciliation of s 110(a)(2)(D)(i) and s 126. See id. at 28,282-83. On the need for some aggregation, of course, there can be no quarrel. Congress's use of the phrase "group of ... sources" plainly reflected a decision to act against sources whose emissions, while harmless individually, could become harmful when combined with others. And, given the relevant statutory provisions, it was reasonable for EPA to link its stationary source findings to the significance of a state's total NOx emissions. By speaking of stationary sources that emit pollutants "in violation of the prohibition of [s 110(a)(2)(D)(i)]," Congress clearly hinged the meaning of s 126 on that of s 110(a)(2)(D)(i). EPA reasoned that if it treated any state's entire manmade emissions as the controlling aggregate for both purposes and found a "significant contribution," "then the State's section 126 sources may be subject to SIP controls." Id. at 28,282/3 (emphasis added). In other words, a source can be subject to s 126 controls only if it is at least at risk of being subject to SIP controls. The effect, of course, is to displace the discretion the state would enjoy in the SIP process under s 110(a)(2)(D)(i). But this displacement of state power seems not materially greater than is inherent in EPA's interpretation of s 126, which we uphold vis-A-vis the objections petitioners raised in their initial briefs. See supra Part II.B. EPA's current reading, to be sure, may not be the only possible or even the most compelling view of s 126. Perhaps the EPA could reasonably read it as petitioners would, and require that stationary sources as a whole independently satisfy some "meaningful contribution" test before they may be subject to s 126 findings. But given s 126's silence on what it means for a

stationary source to violate s 110(a)(2)(D)(i), EPA's approach is at least reasonable, and therefore entitled to deference under Chevron.

Petitioners point to language we used in Michigan striking down part of what EPA had done there. For certain states EPA had analyzed emissions data only from a portion of the state closest to the affected downwind areas, and, finding that portion to have made contributions exceeding the threshold, had made "contribution" findings for the entire state. We held this extension to the whole state invalid because EPA might well have included areas that were "wholly innocent of material contributions." Michigan, 213 F.3d at 681-85. In that context, we said that a significant contribution finding required evidence of a "measurable contribution" and that "[i]nterstate contributions cannot be assumed out of thin air." Id. at 684.

In the present case Non-State Petitioners do not dispute that emissions from affected s 126 sources actually contribute to total manmade NOx emissions that, at the statewide aggregate level, meet the EPA criteria upheld in Michigan. The process here does not involve sweeping up individual sources that might well not be part of the problem at all. The concern that drove our discussion in Michigan is inapplicable.

Non-EGU Petitioners, by contrast, suggest a point that might conceivably implicate Michigan's "measurable contribution" concern. They argue that because EPA failed to model the contribution of each particular source individually, its findings ignore the effects of industrial sources' having lower smoke stacks than utility sources. If in fact NOx emissions from stationary sources with low smoke stacks do not reach other states as easily as emissions from other sources, these petitioners might have a point as to the scope of what Michigan allows. But the petitioners' vague claim that lower stack height "affects the downwind impact" in no way quantifies the effect, much less makes out a claim that

certain sources do not measurably contribute to downwind nonattainment. In Michigan we left "EPA free to select states as a unit of measurement," saying that "[i]n turn, states (or the areas of states that believed themselves innocent of material contributions, or sources located therein), might respond by offering finer-grained computations." 213 F.3d at 684. So, too, the low-stack sources might have come forward with such numbers, but they have not. Or they might have shown that EPA's modeling bore "no rational relationship to the reality it purport[ed] to represent," *Sierra Club v. EPA*, 167 F.3d 658, 662 (D.C. Cir. 1999), thereby throwing the burden back on EPA, but they have not.

A final challenge to the "contribution" findings is the Non-State Petitioners' argument that for four states (Indiana, Kentucky, Michigan and New York) EPA used state-based aggregations to find the contribution but then applied controls to sources in only part of each state. This is a reverse of what we struck down in Michigan: there extension from part to the whole, here, contraction from the whole to a part. EPA's explanation was that while the modeling was state-wide, s 126 empowered it only to address sources named in the downwind states' petitions (which here they did by area). See Jan. 2000 Rule, 65 Fed. Reg. at 2685/1. Petitioners do not contest EPA's legal assumption, but simply say that the process invalidates the finding.

EPA questions whether this objection was raised with reasonable specificity, which under 42 U.S.C. s 7607(d)(7)(B) is a precondition for judicial review. But in the rulemaking itself EPA plainly acknowledged a claim that it was wrong to rely on all manmade emissions from an entire state where the petitions sought relief "from sources located in only a portion of the upwind State." May 1999 Rule, 64 Fed. Reg. at 28,292/3. Nonetheless, petitioners' claim leaves out a critical point. Extension of a finding from an area responsible for pollution problems to another area, where the two are linked only by falling within state boundaries, raises obvious risks of burdening the innocent with the guilty. That risk is far lower in moving from the whole to a part, at least in the absence of

some reason to doubt that the part in question shared in the state's "contribut[ory]" role or that it had been rationally selected on the basis of relevant criteria. Accordingly, the principle that we accepted above in the context of the broad claim (based on s 126's exclusive focus on stationary sources)--namely, that EPA may subject to s 126 controls any source that might have been subject to SIP controls properly adopted under s 110(a)(2)(D)(i), see id. at 28,282/3--appears to cover this issue equally well--at least in the absence of any contention that the petitioning states were arbitrary or discriminatory in their designation of sources (whether they identified them by geographic category, as here, or otherwise).

D. Emission Limitation Determinations

In order to allocate NO_x emission allowances to individual sources, the EPA made state-by-state emission projections for 2007. The EPA based each state's NO_x emission budget on projected 2007 heat input (or "utilization") for electric generating units ("EGUs") and projected 2007 emissions for non-electric generating, industrial facilities ("non-EGUs"). The projections were developed with computer models working off of "baseline" emissions and heat input data from 1995 and 1996. Various petitioners challenge the EPA's budget allocations as arbitrary and capricious. While we generally uphold the EPA's authority to make emission projections and set emission limitations accordingly, we do so only where the EPA adequately responded to comments and explained the basis for its decisions. Thus, although we uphold the EPA's use of the Integrated Planning Model ("IPM") as against the specific challenges forwarded by MW & SE Petitioners, we conclude that at least one application of the model is sufficiently unexplained that we must remand the EPA's IPM-derived growth factors for further explanation.

1. Standard of Review

Agency determinations based upon highly complex and technical matters are "entitled to great deference." *Public Citizen Health Research Group v. Brock*, 823 F.2d 626, 628

(D.C. Cir. 1987); see also *Huls Am., Inc. v. Browner*, 83 F.3d 445, 452 (D.C. Cir. 1996) ("[W]e will give an extreme degree of deference to the agency when it 'is evaluating scientific data within its technical expertise.' " (citation omitted)). In a prior case named *Appalachian Power Co. v. EPA*, 135 F.3d 791, 802 (D.C. Cir. 1998), we described statistical analysis as "perhaps the prime example" of an area

of technical wilderness into which judicial expeditions are best limited to ascertaining the lay of the land. Although computer models are "a useful and often essential tool for performing the Herculean labors Congress imposed on EPA in the Clean Air Act," their scientific nature does not easily lend itself to judicial review.... [I]t is only when the model bears no rational relationship to the characteristics of the data to which it is applied that we will hold that the use of the model was arbitrary and capricious.

Id. at 802 (citation omitted).

Under this standard, the EPA has "undoubted power to use predictive models" so long as it "explain[s] the assumptions and methodology used in preparing the model" and "provide[s] a complete analytic defense" should the model be challenged. *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 535 (D.C. Cir. 1983) ("SRLPTF") (citations and internal quotation marks omitted). That a model is limited or imperfect is not, in itself, a reason to remand agency decisions based upon it.

Ultimately, ... we must defer to the agency's decision on how to balance the cost and complexity of a more elaborate model against the oversimplification of a simpler model. We can reverse only if the model is so oversimplified that the agency's conclusions from it are unreasonable.

Id.

2. The Integrated Planning Model

The MW & SE Petitioners contend that the EPA's emissions growth projections were arbitrary and capricious be-

cause they relied upon a computer model--the "IPM"--that underestimated growth rates for electric power generation in some upwind states. Several states, including North Carolina, submitted comments to the EPA arguing that they projected significantly greater growth in electric power generation than that predicted by the IPM.

Rather than address the specific complaints of each commenting state, the EPA defended its reliance upon the IPM on three broad grounds. First, all state NO_x budget growth rates should be based upon the same methodology to ensure consistency in the NO_x cap's application. Responses to Significant Comments on the Proposed Findings of Significant Contribution and Rulemaking on Section 126 Petitions for Purposes of Reducing Interstate Ozone Transport at 111 (April 1999) ("April 1999 RTC"). Second, the IPM "has

received extensive comment, review, and revision over the past several years" during the NOx SIP call and other proceedings. Id.; see also *Appalachian Power*, 135 F.3d at 814-15 (upholding the EPA's use of the IPM). Third, the IPM "provides a reasonable forecast of State growth rates because it carefully takes into account the most important determinants of electricity generation growth that are facing the power industry today." April 1999 RTC at 112.

Given the highly deferential standard of review applied to such questions, and the EPA's clear authority to rely upon computer models in place of inconsistent, incomplete, or unreliable empirical data, the Agency's decision to rely upon the IPM, rather than the projections offered by individual states, was not arbitrary and capricious. See *Texas Mun. Power Agency v. EPA*, 89 F.3d 858, 870 (D.C. Cir. 1996). In the EPA's judgment, the IPM offered a more comprehensive and consistent means of allocating emission allowances than sorting through the various state-specific projections. That the EPA's projections depend, in large part, on economic projections, rather than environmental factors, makes little difference. "[I]t is within the scope of the agency's expertise to make such a prediction about the market it regulates, and

a reasonable prediction deserves our deference notwithstanding that there might also be another reasonable view." *Environmental Action, Inc. v. FERC*, 939 F.2d 1057, 1064 (D.C. Cir. 1991). MW & SE State Petitioners may believe their projections are superior to the EPA's--and they may even be correct--but they have not proved their case.

3. EGU Growth Factors

Accepting the EPA's general reliance upon the IPM, Non-State Petitioners object to the EPA's use of growth rates generated by the IPM for 2001-2010 to estimate facility utilization growth for the period 1996-2007. According to petitioners, this yielded estimates for facility utilization in 2007 that not only fail to reflect the best information available to the Agency but that are flatly inconsistent with observed growth rates through 1998. Such apparently anomalous estimates, petitioners claim, are arbitrary and capricious, at least absent any explanation from the agency as to why they are appropriate. As a result, Non-State Petitioners claim, at least some EGUs are subject to excessively stringent emission limitations.

The EPA based its state-specific emission budget limitations on projections of facility utilization for 2007. This projection was calculated by taking a baseline utilization rate and applying a "growth factor" to project the 2007 utilization rate, upon which the emission budget limitation would then be imposed. For the starting baseline utilization rate, the EPA used the actual EGU utilization rate for either 1995 or 1996, whichever was greater. For the growth factors, the EPA relied upon the IPM facility utilization projections for the 2001-2010 period to generate an average annual growth rate that was then applied to the 1996-2007 period.

Petitioners contend that the EPA's resulting projections significantly underestimated growth rates in some states. In Michigan and West Virginia, for example, actual utilization in 1998 already exceeded the EPA's projected levels for 2007. This, on its face, raises questions about the reliability of the EPA's projections. While courts routinely defer to agency modeling of complex phenomena, model assumptions must

have a "rational relationship" to the real world. See, e.g., *Chemical Mfrs. Ass'n v. EPA*, 28 F.3d 1259, 1265 (D.C. Cir. 1994). Future growth projections that implicitly assume a baseline of negative growth in electricity generation over the course of a decade appear arbitrary, and the EPA can point to nothing in the record to dispel this appearance.

Despite the apparent disparity between the EPA's growth projections and observed growth rates, the EPA claims its growth factors were reasonable and due deference from this court. Yet even in the face of evidence suggesting the EPA's projections were erroneous, the EPA never explained why it adopted this particular methodology. The EPA claims it made a reasonable choice--and it may be right--but simply to state such a claim does not make it so. There must be an actual reason articulated by the agency at some point in the rulemaking process. There is none here.

The EPA tries to defend its projections by claiming that they may, at least in some instances, actually inflate utilization projections generating "slack" for affected EGUs. Yet the fact that some petitioners may benefit from the inaccuracy of the EPA's projections does not make them reasonable. Faced with evidence that its projections for 2007 are lower than actual utilization rates in 1998 for some states, the EPA has little answer. The EPA first claims that regulated facilities can always purchase additional allowances, albeit at their own expense. This is no answer. The EPA then suggests that facility utilization can fluctuate from year to year. For example, the EPA found in some states that utilization rates were higher in 1995 than 1996. This may be true from one year to the next, but the EPA offers no plausible explanation for how interannual variation can explain utilization rates in 2007 substantially lower than those observed in 1998. Finally, the EPA claims that when the projections are considered on a region-wide level such disparities are likely to disappear. As budgets are set on a state-by-state level, this is small consolation to petitioners. The EPA is well aware of its obligation to "examine the relevant data and articulate a satisfactory explanation for its action," yet it failed to discharge this obligation here. *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

The EPA had other ways of generating 2007 utilization projections. The EPA readily admits that it had IPM projections for the 1996-2001 period, as well as for 2007. The EPA makes no claim that these results, as opposed to the projections offered up by the states, are inherently less reliable or consistent than the growth projections the EPA used here. The EPA readily acknowledges it utilized one set of growth-rate projections to set allowance budgets, another to assess emission reduction costs. As it explained in its Response to Comments:

The budgets were constructed using growth rates for 1996-2007 that were consistent with the growth rates in IPM for 2001-2010, which may be higher or lower than the growth rates for the years 1996-2001. EPA's analysis of the costs of complying with these budgets, however, was conducted using IPM, which incorporates internally consistent growth assumptions--i.e., the growth for 1996 through 2001 is based on IPM assumptions for 1996 through 2001, and the growth for 2001 through 2010 is based on IPM assumptions for 2001 through 2010.

April 1999 RTC at 112-13. While admitting that two sets of growth rates were used, the EPA offers no cogent explanation for this difference. Instead, the EPA merely asserts, without adequate explanation, that each choice was reasonable. The EPA further offers no comprehensible explanation how relying upon erroneously low growth rates will not cause petitioners harm.

As we discussed above, the EPA has "undoubted power to use predictive models" but only so long as it "explain[s] the assumptions and methodology used in preparing the model" and "provide[s] a complete analytic defense" should the model be challenged. *SRLPTF*, 705 F.2d at 535 (citations and internal quotation marks omitted). In this case, the EPA has not fully explained the bases upon which it chose to use one set of growth-rate projections for costs and another for budgets, nor has it addressed what appear to be stark

disparities between its projections and real world observations. "With its delicate balance of thorough record scrutiny and deference to agency expertise, judicial review can occur only when agencies explain their decisions with precision, for 'it will not do for a court to be compelled to guess at the theory underlying the agency's action ...' " *American Lung Ass'n v. EPA*, 134 F.3d 388, 392 (D.C. Cir. 1998) (quoting *SEC v. Chenery Corp.*, 332 U.S. 194, 196-97 (1947)). As a result, we have no choice but to remand the EPA's EGU growth factor determinations so that the agency may fulfill its obligation to engage in reasoned decisionmaking on how to set EGU growth factors and explain why results that appear arbitrary on their face are, in fact, reasonable determinations.

4. Non-EGU Budget Determinations

Non-State Petitioners allege that the EPA repeatedly modified the growth assumptions in its calculation of non-EGU-sector NOx budgets in such a fashion as to preclude any meaningful opportunity to comment. According to petitioners, when the EPA modified successive versions of its technical support document ("TSD") it did not include a complete set of non-EGU growth factors. Then, when the EPA issued the final non-EGU growth budgets in December 1999, it released modified growth rates without any explanation. The EPA explained that "corrections to the growth rates ... were made to reflect the growth rates misapplied in the May 14, 1999 version of the budget." Technical Amendment to the Finding of Significant Contribution and Rulemaking for Certain States for Purposes of Reducing Regional Transport of Ozone, 65 Fed. Reg. 11,222, 11,223 (Mar. 2, 2000). Because these changes were made without notice or explanation, petitioners contend they must be set aside.

The EPA asserts petitioners waived this claim. "[T]he procedural requirements of the Clean Air Act do not permit [petitioners] to raise this objection for the first time on appeal." *API v. Costle*, 665 F.2d 1176, 1190-91 (D.C. Cir. 1981). Under section 307(d)(7)(B) of the Act, a reviewing court may only consider "an objection to a rule or procedure

which was raised with reasonable specificity during the period for public comment." 42 U.S.C. s 7607(d)(7)(B). The petitioner is only excused from raising an objection where it is "impracticable ... or if the ground for such objection arose after the period for public comment." Yet even then the petitioner must first seek a proceeding for reconsideration. *Id.* Only then may petitioner seek judicial review. This court "enforces this provision 'strictly.'" *MEMA v. Nichols*, 142 F.3d 449, 462 (D.C. Cir. 1998) (citation omitted).

These objections were never raised during the notice and comment period, nor did petitioner ever seek reconsideration. Neither of these facts is contested by petitioners. Thus, even if, as petitioners claim, it was impracticable for many facilities to determine their growth factors, they waived their claim. Moreover, the EPA notes that petitioners do not cite any facilities that were unable to determine their growth factors due to the EPA's alleged omissions, suggesting that there is no harm to redress. Accordingly, the relevant petitions are denied.

5. Local Regulation and Permit Trading

The MW & SE State Petitioners have also argued that the permit trading system contravenes CAA s 116, which allows a state to impose a local air quality standard more stringent than the corresponding NAAQS. 42 U.S.C. s 7416. The petitioners' concern is that a source might purchase permits in excess of applicable local limits and then claim the right to pollute in excess of those limits, up to the full amount of its permits. The EPA properly denies that the permit trading program would make such a claim viable. Nothing in the challenged rules exempts from s 116 a source that has acquired permits.

Although they are unable to point to any provision of the rule that allows permit trading to trump a local rule authorized by s 116, the petitioners worry in their reply brief that "other interpretations" might prevail in the future. Perhaps so, but for now, and until such time as it may conduct a new rulemaking, the EPA is committed to the position that it espouses here. The petitioners also suggest that the EPA

might decline to approve a SIP that imposes stringent local limits because of its commitment to a market in emissions permits; but non-approval of a SIP is subject to judicial review, and an argument based upon the incompatibility of EPA policy and s 116 may be raised when and if the EPA disapproves a SIP in order to advance the market for emissions permits.

E. Regulation of "Future" Sources

The section 126 rule establishes a NO_x budget for each upwind state found to contribute significantly to nonattainment in the petitioning states. Ninety-five percent of this budget is allocated in the form of NO_x emission allowances to existing sources. Five percent of each state's budget is set aside for future sources. In this fashion, the rule caps emissions on existing and proposed sources, as well as sources to be proposed and built in the future.

MW & SE State Petitioners challenge the EPA's authority to impose the NO_x cap limits to future, as-yet-unproposed stationary sources under section 126. Petitioners argue that the statute does not authorize the EPA to regulate future sources, and that the EPA's contrary interpretation of section 126 is unreasonable. We disagree.

We review the EPA's interpretation under the two-part analysis established in *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984). "First, always," we must consider "whether Congress has directly spoken to the precise question at issue." An affirmative answer "is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress." *Id.* at 842-43. If, on the other hand, "the statute is silent or ambiguous with respect to the specific issue," we must uphold "a reasonable interpretation made by the administrator of an agency." *Id.* at 843, 844; see also *American Bus Ass'n v. Slater*, 231 F.3d 1, 4 (D.C. Cir. 2000).

Under section 126(b) a downwind state "may petition the Administrator for a finding that any major source or group of stationary sources emits or would emit any air pollutant" in an amount which contributes significantly to nonattainment in the petitioning state. 42 U.S.C. s 7426(b). Once the EPA makes a section 126(b) finding, section 126(c) provides that:

it shall be a violation of this section and the applicable implementation plan in such State--

(1) for any major proposed new (or modified) source with respect to which a finding has been made under subsection (b) of this section to be constructed or to operate in violation [of this section or section 110], or

(2) for any major existing source to operate more than three months after such finding has been made with respect to it.

Id. s 7426(c). The Administrator may allow the continued operation of existing sources beyond three months provided such sources comply with emission reductions provided by the Administrator to "bring about compliance ... as expeditiously as practicable, but in no case later than three years after the date of such finding." Id.

Petitioners argue that the EPA's interpretation fails at the first step of Chevron, contending that section 126(c) authorizes the EPA to regulate existing and proposed sources but not future sources that are not as yet proposed. In petitioners' view, the enumeration of two classes of sources that may be controlled--"major existing sources" and "proposed new (or modified) sources"--precludes the EPA's authority over a third class of sources--"future as-yet-unproposed" sources. Expressio unius est exclusio alterius. Petitioners argue that irrespective of whether the EPA can make findings with regard to future, as-yet-unproposed sources, it is not empowered to prohibit their construction or limit their emissions under section 126(c).

We reject petitioners' contention that the statute unambiguously reflects congressional intent to limit the EPA to the two categories defined by petitioners. Section 126 is at least

subject to the interpretation that Congress intended to authorize the regulation of emissions from future sources. Under section 126(b), the EPA may find that "any major source or group of stationary sources emits or would emit" pollution in violation of section 110. The inclusion of the future conditional phrase "would emit" arguably contemplates the EPA's intervention to prevent future emissions that would contribute significantly to nonattainment in downwind states. Similarly, as the EPA argues, section 126(c) explicitly bars the construction or operation of "any major new proposed sources." By barring the construction of those sources, the statute clearly contemplates the imposition of controls on at least some facilities that do not yet exist. These provisions, taken together, may not compel the regulation of future sources under section 126, but they do not unambiguously forbid it. At the least, they introduce sufficient ambiguity into the statutory scheme to prevent resolution of this issue under Chevron step one.

In the absence of an unambiguous expression of congressional intent in the plain language of the statute, we advance to the second step of the Chevron analysis to determine whether the EPA's interpretation of section 126 is a reasonable one. We conclude that it is. Prior to 1990, section 126(b) only authorized EPA findings that "a major source emits or would emit any air pollutant" which contributes significantly to nonattainment in a downwind state. 42 U.S.C. s 7426(b) (1977). The 1990 Clean Air Act Amendments expanded the scope of this provision by allowing EPA findings with regard to "any major source or group of stationary sources." 42 U.S.C. s 7426(b) (1994) (emphasis added). Similarly, the EPA notes that the cross-referenced provision of the act, section 110(a)(2)(D)(i) prohibits "type[s] of emissions activity" that contribute significantly. 42 U.S.C. s 7410(a)(2)(D)(i). Like section 126, section 110 confers authority based upon the kind of activity in question. It does not impose any temporal limit.

The statutory language allows the EPA to regulate facilities in upwind states as a class or category, e.g. all coal-fired power plants in North Carolina. If such facilities, as a class,

contribute significantly to nonattainment in northeastern states, this is as true for as-yet-unbuilt plants as it is for existing ones. Therefore, the EPA argues, it is reasonable to include future sources in the "group of stationary sources" found to contribute significantly to downwind nonattainment under section 126(b). Indeed, it would be irrational to enable the EPA to make findings that a group of sources in an upwind state contribute to downwind nonattainment, but then preclude the EPA from regulating new sources that contribute to that same pollution. As the EPA explained in its Response to Comments:

Once EPA has determined that the emissions from the existing sources in an upwind State already make a significant contribution to one or more petitioning downwind States, any additional emissions from a new source in that upwind State would also constitute a portion of that significant contribution, unless the emissions from that new source are limited to the level of highly effective controls.

April 1999 RTC at 39. The EPA's construction of section 126 avoids this result.

The language of section 126(c) does not make the EPA's interpretation an unreasonable one. Petitioners note that section 126(c) specifically identifies two classes of sources-- "major existing sources" and "proposed new (or modified) sources"--and makes no mention of future, as-yet-unproposed sources. What petitioners ignore is that section 126(c), by its terms, defines what constitutes a violation of section 126. For a facility to violate the law, by definition it must either exist or be proposed. Future, as-yet-unproposed sources are not mentioned because unproposed, unbuilt facilities cannot themselves be in violation of anything. At the time they become subject to the section 126(c) limitation, however, they will either be an "existing" or "proposed new" source. That is to say, section 126(c) has no direct effect on plants that have yet to be proposed for the precise reason that they have not yet been proposed. This does not mean, however, that facilities proposed after the promulgation of the EPA's find-

ings are exempt from section 126(c). Once they are proposed, they become part of the regulated class.

Perhaps it would be reasonable for the EPA to interpret the statute as urged by petitioners. Section 126 is arguably a stop-gap provision designed to protect downwind states from upwind pollution by empowering the federal government to take direct action against those specific upwind facilities which cause downwind harm. From a structural standpoint, this interpretation may seem intuitive: States regulate all emitters; the EPA only regulates those emitters shown to contribute significantly to downwind nonattainment despite the existence of a SIP. Yet however rational this alternative interpretation of the Clean Air Act may be, under Chevron step two, the EPA's interpretation controls so long as it is based upon a permissible construction of the statute. As we conclude that the EPA adopted a reasonable interpretation of section 126's somewhat ambiguous provisions, its interpretation is upheld.

F. The Dorris Report

In comments submitted on August 9, 1999, North Carolina requested that the EPA consider and comment upon "all materials submitted to it by Dr. Gary Dorris, Hagler-Bailly, or Stratus Consulting since July 1, 1998." Dr. Dorris was hired by the EPA to conduct modeling work in conjunction with the NOx SIP call. According to North Carolina, Dr. Dorris's "extensive" modeling "shows that North Carolina does not significantly contribute to nonattainment areas" and provides "a rational basis for determining significant contribution that considers cost effectiveness...." In its comments, North Carolina identified numerous materials submitted by Dr. Dorris, including briefing documents and preliminary analytical results. North Carolina states that it would have commented on these materials directly, however the EPA had denied North Carolina's FOIA requests for access to the studies.

On November 24, 1999, Dr. Dorris submitted his final report to the EPA. According to the EPA, the report used computer modeling to assess the relative cost-effectiveness of

NOx emission reductions in upwind states in comparison to emission reductions in downwind states. This report concluded, among other things, that the relative contribution of a ton of NOx emissions will vary due to "emission source location, stack elevation, and chemical species." This, in turn, impacts the cost-effectiveness of emission reductions in upwind states.

In promulgating its final section 126 rule, the EPA made no mention of the Dorris Report or any of Dr. Dorris' preliminary findings. While the report was relevant to the significant contribution issue, the EPA maintains that it made its final significant contribution determination with the May 1999 section 126 rule. When North Carolina submitted its comments in August, the EPA was only considering narrow issues related to the stay of the SIP submission deadlines and the impact of *American Trucking Ass'n v. EPA*, 175 F.3d 1027, reh'g granted in part and denied in part, 195 F.3d 4 (D.C. Cir. 1999), rev'd in part sub nom. *Whitman v. American Trucking Ass'n*, 121 S. Ct. 903 (2001).

North Carolina contends that the EPA erred in refusing to consider the Dorris Report in the section 126 rulemaking. There is no doubt that the EPA is required to examine the relevant data and articulate a sufficiently reasoned explanation for its action. See *Motor Vehicle Mfrs. Ass'n, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). This Court is obligated to "overturn a rulemaking as arbitrary and capricious where the EPA has failed to respond to specific challenges that are sufficiently central to its decision." *International Fabricare Inst. v. EPA*, 972 F.2d 384, 389 (D.C. Cir. 1992). An agency is not required to consider issues and evidence in comments that are not timely filed. *Personal Watercraft Indus. Ass'n v. Dept. of Commerce*, 48 F.3d 540, 543 (D.C. Cir. 1995) ("Agencies are free to ignore such late filings."). Therefore, if North Carolina did not raise the Dorris Report at the appropriate time, the EPA may ignore the findings contained therein.

Contrary to North Carolina's claims, the EPA was justified in ignoring the Dorris materials because they pertained to aspects of the section 126 rule which the EPA had already finalized by the time North Carolina submitted its regulatory comments. It may well be true that the EPA had access to draft copies of the Dorris Report while the comment period was still open. Yet the EPA was no longer considering the significant contribution issues when North Carolina first requested review of the Dorris materials. Significant contribution was considered in the prior rulemaking and finalized in the May 1999 rule. Jan. 2000 Rule, 65 Fed. Reg. at 2684-85.

Because North Carolina's request that the EPA consider the Dorris Report with respect to the significant contribution issues was not timely filed, the EPA did not arbitrarily and capriciously ignore the Dorris Report. Instead of considering the Dorris Report as part of the section 126 rulemaking, the EPA treated North Carolina's submission as a petition for reconsideration. See *id.* at 2676.

Under CAA section 307(d), any documents "which become available after the proposed rule has been published and which the Administrator determines are of central relevance to the rulemaking shall be placed in the docket as soon as possible after their availability." 42 U.S.C. s 7607(d)(4)(B)(i). Under both the plain language of this provision and this Court's precedents, the Administrator enjoys substantial deference in determining whether to consider material submitted after the close of the comment period. See, e.g., *Eastern Carolinas Broad. Co. v. FCC*, 762 F.2d 95, 103 (D.C. Cir. 1985) ("Courts normally reverse an agency's decision not to reopen the record only for abuse of discretion.").

The EPA maintains its comments reveal that it carefully considered the report and its relevance to the section 126 rule. After such consideration, however, the EPA concluded that the report was too preliminary and limited to justify reopening the record and reconsidering its prior determination. While the Dorris Report relates to issues at the core of the NOx SIP call and section 126 rulemaking, the EPA viewed the report as "preliminary" and its findings limited. In its

August 2000 Response to Comments, the EPA noted the report "has not undergone scrutiny through notice-and-comment rulemaking" or "careful scientific and technical review." Rulemaking for Section 126 Petitions-Responses to Significant Comments Which are [sic] Outside the Scope of the June 24, 1999 Notice of Proposed Rulemaking at 8 (Aug. 2000). The EPA further noted that the approach put forward by the report conflicts with the implementation of a market-based NOx emission trading program. Given the deferential standard employed in this context, the EPA's refusal to reopen and reconsider its significant contribution findings must be upheld.

III. NON-ELECTRIC GENERATING UNIT ISSUES

A. Alleged Budget Allocation Errors

Non-EGU Petitioners complain that the EPA made substantial errors in the allocation of emission allowances which can only be cured by a remand and reallocation of all emission allowances in the affected states. Specifically, Non-EGU Petitioners identify two facilities for which there is a great disparity between allocated emissions and actual emissions.⁶ In one case, the EPA allocated a facility less than one-seventh what it should have been allocated because it used erroneous heat-input data. In another, it grossly overestimated a facility's share of state-wide NOx emissions. These errors not only impact the facilities in question, peti-

⁶ Non-EGU Petitioners also argue that non-EGU sources that began operating between 1995 and May 1, 1997 were never allocated the required NOx allowances. We do not consider this claim because the EPA addressed the claims of the three units identified that fell into this category. See *Appalachian Power Co. v. EPA*, No. 99-1200, 2000 WL 1683469 (D.C. Cir. Oct. 13, 2000) (order, inter alia, severing claims of petitioners and holding them in abeyance pending implementation of settlement agreements).

tioners claim, but all facilities in the state due to the state-wide NOx caps.

The EPA argues that such claims are waived because they were not raised during the notice and comment period, nor does the record contain any indication that petitioners filed a motion for reconsideration. The EPA allocated allowances based upon the heat input data it received from covered entities. Where the EPA received information from covered facilities indicating an allocation error, it made corrections. Insofar as a covered facility failed to ensure that the EPA was making its allocation based upon proper data, the claim is waived and cannot be addressed via judicial review. Of the two facilities cited by Petitioners in their brief, the EPA notes that one has settled its claim with the EPA, and the other was specifically identified in the EPA's rulemaking. Oct. 1998 Rule, 63 Fed. Reg. at 56,369. The EPA's proposed rule also specified what sorts of units would be covered, irrespective of their inclusion on the proposed list of allocations. Id. at 56,332.

Petitioners nonetheless argue that the existence of any allocation error requires setting aside all allowance allocations for a given state because the EPA has imposed state-specific budgets. Even were this claim to have merit, it too was waived. Under the CAA, "[o]nly an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment ... may be raised during judicial review." 42 U.S.C. s 7607(d)(7)(B). The general complaints raised by Non-EGU Petitioners during the rule-making about errors in allowance allocations are insufficient to meet this requirement as they failed to provide the agency with enough information to address the alleged failing of the rule.

B. Treatment of Cogenerators

The world of significant stationary sources producing NOx can loosely be divided into two categories--electric generating units ("EGUs") and sources that do not generate electricity ("non-EGUs"). Cogenerators straddle these lines, as they

serve two functions, electricity generation and some direct industrial activity. We deal here with their classification.

EPA concluded that the application of its \$2000/ton cost-effectiveness principle called for different standards for the two types of units. First, for "large EGUs"--boilers and turbines that serve generators capable of producing greater than 25 megawatts ("MWe") and that produce electricity for sale to an electric grid (with different minimum sales levels depending on the generator's date), see May 1999 Rule, 64 Fed. Reg. at 28,300-01--EPA imposed a ceiling of .15 pounds per million Btu per hour ("lb./mmBtu/hr.").

Second, for "large non-EGUs" or "large boilers"--boilers and turbines with a heat input greater than 250 mmBtu/hr. that, in general, only generate steam and/or mechanical work or that produce electricity for internal use only, see Jan. 2000 Rule, 65 Fed. Reg. at 2731 (40 C.F.R. s 97.4(a)(1)-(2))--EPA required a 60% reduction in NOx emissions, which it says corresponds to an average control level of approximately 0.17 lb./mmBtu/hr., May 1999 Rule, 64 Fed. Reg. at 28,301/2.

We do not know why EPA frames one limit in terms of NOx emissions per mmBtu and the other as a percentage reduction. In the original SIP call, EPA stated a preference for a flat limit over a percentage reduction for EGUs, noting that a percentage reduction rule tended to benefit states that had made less effort. 62 Fed. Reg. at 60,351/1. We've found, and the parties offer, no explanation for rejecting this logic for non-EGUs. But here the concern is that large cogenerators selling electricity to the grid end up being treated as large EGUs (at least if they sell at the minimum levels specified), subject to the more stringent rule (evaluated in terms of maximum emissions per mmBtu/hour).

Petitioners claim that EPA departed without adequate explanation from a long-standing agency and congressional

policy favoring cogeneration, and also failed affirmatively to justify the new classification. We do not find the historical policy concerns to be dispositive, but we agree on their second point.

In previous regulatory contexts, EPA and Congress have treated cogenerators as non-EGUs if they sold to the grid less than one-third of their potential capacity, or less than 25 MWe per year. May 1999 Rule, 64 Fed. Reg. at 28,297/2. In proposing its new definition of large EGUs in the preamble to the May 1999 rule, EPA offered two relevant responses to comments. First it argued that when the agency began using the earlier division in 1978, it served broadly as "a proxy" to distinguish between units that were, or were not, owned by utilities. But it reasoned that since 1990 deregulation had had a dramatic effect on the industry, allowing non-utilities increasingly to compete with utilities. EPA believed that this effect obviated the need to differentiate between utilities and non-utilities. See *id.* In addition, EPA cited a supplemental notice of proposed rulemaking under the NOx SIP call for the proposition that "there is no relevant physical or technological difference between utilities and other power generators," *id.* at 28,297/3 (quoting 63 Fed. Reg. at 25,923), and stated that it "continue[d] to believe that cogeneration units can achieve similar NOx emission reductions as utility units," *id.* at 28,298/1.

The explanation by reference to electric utility deregulation may well explain abandonment of the old definition, although the point is hard to evaluate since the link between choosing suitable emissions limits and the degree of direct competition between the classes of regulated firms is unexplained and not self-evident. In any event, the rationality of moving away from the prior classification in itself says nothing about why EPA chose the new one. On that score, EPA's current reasoning, to the extent that we are able to discern it, supports the new classification as a means to implement the cost-effectiveness criteria. While as we noted above the

standard for large EGUs is more stringent than the one for large non-EGUs when evaluated in terms of emissions per mmBtu/hour heat input (.15 lb. as opposed to .17 lb.), a table in the preamble to the May 1999 rule indicates that the two control levels have virtually identical predicted incremental costs (\$1,468 for the former, \$1,467 for the latter, all in terms of estimated cost per ton in 1990 dollars in 2007). See *id.* at 28,300 (Table II-4).⁷

If this analysis is correct (and EPA has presented no alternative), then the classification of cogenerators should turn on whether their NOx reduction costs best match those of EGUs or non-EGUs. We note at the outset that the non-EGU class includes cogenerators that produce electricity for internal purposes only. Thus sources that apparently may be identical physically are subject to different standards--a divergence hard to reconcile to the supposedly controlling criterion of cost. To the extent that it is linked to EPA's former concern over competition with utilities, the agency's own abandonment of that concern renders it obsolete. Indeed, EPA does not even attempt to justify the distinction. It merely notes that "it may be appropriate at some time in the future to consider all units generating electricity, whether for sale or internal use, as a single category." *Id.* at 28,298/1.

EPA does assert that "there is no relevant physical or technological difference between utilities and other power generators." *Id.* at 28,297/3 (quoting 63 Fed. Reg. at 25,923). If true, this similarity would support treating cogenerators as EGUs, but EPA cites no record support. See *id.* Otherwise, EPA merely claimed that "it continues to believe that industrial cogeneration units can achieve similar NOx emission limitations reductions as utility units" and that selective catalytic reduction and selective non-catalytic reduction are "prov-

⁷ The preamble to the final rule presents updated figures that are more divergent, estimating the large EGU controls to cost \$1,432 per ton in 1990 dollars in 1997, and the large non-EGU controls to cost \$1,589. Jan. 2000 Rule, 65 Fed. Reg. at 2677.

en technologies demonstrated on industrial and utility units." Id. at 28,298/1. But the point that cogenerators can implement these technologies hardly shows that they can do so at the same costs as other EGUs.

In its brief, EPA claims that it "specifically reviewed the cost-effectiveness of controls for cogeneration facilities in response to comments" and "determined that the control technologies that EPA had determined to be highly cost-effective for EGUs . . . , had been successfully applied to cogeneration facilities, and, therefore, there was no technical reason to distinguish between generating facilities owned by utilities and other electric generators, including cogenerators." But, once again, neither this statement nor any of the record documents cited in support purports to assess the costs of "successfully" applying such controls to cogenerators. Additional materials cited in EPA's brief are equally silent on the subject. See Office of Air and Radiation, U.S. Environmental Protection Agency, "Analyzing Electric Power" (July 1996); 62 Fed. Reg. at 60,349 (Table III-3), 60,350/3.

Finally, EPA's brief also notes that "EPA's analysis of which controls are highly cost-effective for EGUs included all cogeneration units that generated electricity for sale." But the fact that all units currently classified as "EGUs" can, on average, cost-effectively implement the EGU cap, see May 1999 Rule, 64 Fed. Reg. at 28,300 (Table II-4), says nothing about whether cogenerators, as a discrete subclass, can do so. Indeed, if cogenerators represented a small enough portion of the sample size, even astronomical control costs would have little effect on the average. On the central question of whether EPA actually compared the costs of cogenerator controls to those of other EGUs, EPA does not speak and the documents it cites shed no light.

As EPA has failed to explain its classification of cogenerators, see, e.g., *American Lung Ass'n v. EPA*, 134 F.3d 388, 392 (D.C. Cir. 1998), and its failure to respond to significant comments leaves us only to guess whether its decision was

"based on a consideration of the relevant factors," see, e.g., *Thompson v. Clark*, 741 F.2d 401, 409 (D.C. Cir. 1984) (quoting *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971)), we vacate and remand that portion of the rule.

C. Source-Specific Issues

1. AK Steel Corporation

AK Steel, one of the Non-EGU Petitioners, claims that the final rule improperly subjected four of its waste heat boilers to regulation as large non-EGUs. The regulations at issue apply to these boilers only if they (a) are "fossil fuel fired" boilers with a 1995 "heat input" comprised more than 50% of fossil fuel, Jan. 2000 Rule, 65 Fed. Reg. at 2728/3, 2731/1 (40 C.F.R. s 97.2 (definitions of "unit" and "fossil fuel fired")), and (b) have a "maximum design heat input" greater than 250 mmBtu/hr., id. at 2731/2 (40 C.F.R. s 97.4(a)(2)(i)).

AK Steel argues initially that its four furnaces fail to meet the first criterion: The waste heat input from its "slab heat furnaces" is great enough to render its fossil fuel input less than 50% of the total, so that its boilers are not "fossil fuel-fired." EPA argues that AK Steel failed to raise its objection with the necessary specificity. See 42 U.S.C. s 7607(d)(7)(B) ("Only an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment ... may be raised during judicial review."). We think its submission adequate, though only barely so. On the merits, however, AK Steel is mistaken; it hasn't read the regulations carefully enough.

EPA correctly notes that the regulation defines "heat input" as excluding "heat derived from preheated combustion air, recirculated flue gases, or exhaust from other sources." Jan. 2000 Rule, 65 Fed. Reg. at 2729/1 (40 C.F.R. s 97.2). The EPA asserts, and petitioners do not dispute, that the waste heat input that it invokes is precisely such "preheated combustion air" or "exhaust from other sources." So those inputs do not prevent its boilers from satisfying the 50% fossil-fuel calculation.

In their reply brief, petitioners raise a new issue. There they argue that waste heat should be excluded from calculation of the 250 mmBtu/hr. threshold for "maximum design heat input," see *id.* at 2731/2 (40 C.F.R. s 97.4(a)(2)(i)), which if true would mean that their boilers would not exceed the 250 mmBtu/hr standard. AK Steel has no explanation for why waste heat should be counted in one context and not the other, but EPA does offer a defense of the opposite position, arguing that, unlike the definition for "heat input," the capacity-based definition of "maximum design heat input" does not exclude specific input types. See Jan. 2000 Rule, 65 Fed. Reg. at 2729/1 (40 C.F.R. s 97.2) (defining maximum design heat input as "the ability of a unit to combust a stated maximum amount of fuel per hour ... on a steady state basis, as determined by the physical design and physical characteristics of the unit"). But because of petitioners' failure to raise the issue in their opening brief, we do not address it on the merits. See *United States v. Wilson*, 240 F.3d 39, 45 (D.C. Cir. 2001).

2. New Boston Coke Corporation

New Boston Coke Corporation operates two regulated boilers subject to the same set of regulations. Its brief states that these boilers "are each designed with maximum heat capacity of 464 mmBtu/hr.," but claims that in actual operation the heat input of each is less than half that figure. One boiler is usually kept in reserve while the other fires, and the one that fires usually does so at 40% of capacity or less. Thus, argues New Boston, the normal input capacity for the units is less than 232 mmBtu/hr., below the 250 mmBtu/hr. threshold.

The EPA responds that New Boston has forfeited the claim because it never raised the objection before the agency, as required by s 307(d)(7)(B) of the Clean Air Act, 42 U.S.C. s 7607(d)(7)(B). New Boston's rebuttal is that it never received notice of the proposed rule, arguing that its name didn't appear in the appendix to that notice and denying that it was included by virtue of the notice's generic terms. See Oct. 1998 Rule, 63 Fed. Reg. 56292, 56,332 (40 C.F.R.

s 52.34(k) & Table F-1), 56,341 (40 C.F.R. s 97.4), 56,360-91. (This same defect in notice is raised by the Non-EGU Petitioners on behalf of an unspecified group of sources, but it is only for New Boston that petitioners claim that the supposed defect had any adverse effect (from petitioners' perspective) on the ultimate regulation, and so we address the claim only in this connection.)

Section 307(d)(7)(B) addresses the possibility of defective notice. It excuses a party's failure to object in the course of the rulemaking where it was "impracticable to raise" the objection, and the agency's failure to give proper notice would plainly create such impracticability. *American Petroleum Institute v. Costle*, 665 F.2d 1176, 1190-91 (D.C. Cir. 1981). Section 307(d)(7)(B), however, explicitly makes the excuse conditional on the party's seeking relief before the agency by petition for reconsideration. See *id.* at 1191-92. As there is no evidence that any such petition was submitted, we cannot reach the merits of petitioners' claim, including even the claim of defective notice.

IV. FACILITY-SPECIFIC ISSUES

Two petitioners raise facility-specific objections to the section 126 rule. In each case, we have no occasion to reach the merits of petitioners' arguments. By failing to raise their objections to the EPA prior to seeking judicial review, petitioners waived their claims.

A. Midland Cogeneration Venture

Petitioner Midland Cogeneration Venture ("MCV") operates a "combined cycle" cogeneration plant that produces electricity and steam in Midland, Michigan. MCV alleges that the EPA was arbitrary and capricious in applying the section 126 rule to its facility because MCV is legally and operationally incapable of emitting in excess of the rule's "NOx Cap."⁸

⁸ MCV also challenges the EPA's treatment of cogeneration facilities. This issue is addressed *supra* Part III.B.

This Court has no jurisdiction to consider MCV's claims. Under section 307(d) of the Act, "[o]nly an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment ... may be raised during judicial review." 42 U.S.C. s 7607(d)(7)(B). MCV does not dispute that its comments did not address this issue. Its defense is that no such comments were possible because, as the EPA admits, the agency did not have sufficient data on cogenerators to develop an output-based approach to setting emission limits for given facilities. This may be so, but "the procedural requirements of the Clean Air Act do not permit [MCV] to raise this objection for the first time on appeal." *API v. Costle*, 665 F.2d 1176, 1190 (D.C. Cir. 1981). Rather, the CAA requires a petitioner to first raise its objection to the agency through a petition for reconsideration. See *id.* at 1191 ("The statute states that before this court may review a procedural objection the parties must raise the objection on a petition for reconsideration before the EPA when the grounds for such objection 'arose after the period for public comment (but within the time specified for judicial review).' "); *Appalachian Power Co. v. EPA*, 135 F.3d 791, 799 n.14 (D.C. Cir. 1998) (same). Because MCV never registered its objections with the agency, let alone filed a formal petition for reconsideration, we cannot reach the merits of its claim.

B. Indiana Municipal Power Agency

Petitioner Indiana Municipal Power Agency ("IMPA") is a municipal power agency that operates four combustion turbines that provide supplemental power on days with high power usage. IMPA alleges that the "25-ton exemption" in 40 C.F.R. s 97.4(b) is arbitrary and capricious because it "ignores actual emissions and instead calculates hypothetical maximum emissions" in determining whether a unit is eligible for the exemption. By adopting a "worst-case-fuel assumption," the exemption treats IMPA as if its emissions were nearly five times greater than the actual emissions rate during normal operating conditions.

Like MCV, IMPA never raised its objection in comments before the agency. Unlike MCV, however, IMPA cannot

claim that it was caught by surprise by the EPA's final rule. While the specific contours of the 25-ton exemption were not identified in the EPA's Notice of Proposed Rulemaking ("NOPR"), the NOPR did propose adopting the exemption contained in the NOx SIP regulations at 40 C.F.R. s 96.4(b). See Oct. 1998 Rule, 63 Fed. Reg. at 56,313. The proposal used different language than s 97.4, but it similarly bases the exemption on a unit's "maximum potential hourly NOx mass emissions." 40 C.F.R. s 96.4(b)(1)(ii), (iii). This satisfies the requirement that the final rule be a "logical outgrowth" of the proposed rule. See *Fertilizer Inst. v. EPA*, 935 F.2d 1303, 1311 (D.C. Cir. 1991). Therefore, IMPA had ample opportunity to comment on the proposed rule. Because it did not, it waived its claim under section 307(d). 42 U.S.C. s 7607(d)(7)(B).

V. PITTSBURGH

Like many of the affected states, Pennsylvania is both an "upwind" state subject to the s 126 regulation and a "downwind" state that has petitioned EPA under s 126 to regulate "upwind" contributions to Pennsylvania's own nonattainment problems. Acting in its capacity as a downwind state, Pennsylvania objects to EPA's refusal to use ozone pollution in the Pittsburgh area as a basis for s 126 findings (thus, it argues, potentially failing to impose crackdowns on additional sources upwind of Pittsburgh). The problems arise from two circumstances: Pittsburgh appeared at the time of the rulemaking to be on the verge of being reclassified as in attainment of the 1-hour standard, but also on the verge of being subject to the more stringent 8-hour rule.

In its May 1999 Rule, EPA denied the portion of Pennsylvania's s 126 petition that alleged upwind contribution to the nonattainment of the 1-hour ozone standard in the Pittsburgh area. Having received preliminary data showing that Pittsburgh (and a number of other areas) were no longer in violation of that standard, and having taken steps to formally revoke its nonattainment determination, see 64 Fed. Reg. at

28,257/2, EPA thought "it would not be appropriate" to consider whether the pertinent upwind areas were "significantly contributing" to a nonattainment that was apparently non-existent, *id.* at 28,291/2. Section 110(a)(2)(D)(i) also requires that SIPs bar emissions that would "interfere with maintenance" of ambient standards, and petitioning states such as Pennsylvania asked for such a finding as to the 1-hour standard. EPA declined this too, explaining that its policy was to revoke the 1-hour standard for any area that attained it and replace it with the stricter 8-hour standard. See *id.* at 28,291-92. But in January 2000, after this court's decision in *American Trucking Ass'n v. EPA*, 175 F.3d 1027, reh'g granted in part and denied in part, 195 F.3d 4 (D.C. Cir. 1999), rev'd in part sub nom. *Whitman v. American Trucking Ass'n*, 121 S. Ct. 903 (2001), which remanded the 8-hour standard, EPA moved to reimpose the 1-hour standard for all areas where it had been revoked and has yet to reintroduce the 8-hour standard. See Jan. 2000 Rule, 65 Fed. Reg. at 2678-79. In its January 2000 rule, in which it converted its technical determinations into formal s 126 findings, EPA recognized that the 1-hour standard might once again become the sole NOx standard. But it didn't seize the occasion to revisit its rejection of the "interfere with maintenance" portion of Pennsylvania's petition. See *id.* at 2678/3.

Pennsylvania's first objection is that the Pittsburgh attainment data were only preliminary; to this day they have not yielded a formal finding of attainment. (In fact, data from the 1999 ozone season indicate renewed violations.) Moreover, the statute provides that a region in "moderate" nonattainment that fails to move into attainment will, at the very least, be reclassified as "serious" and thus subject to more stringent controls, see 42 U.S.C. ss 7511(b)(2), 7511a(c), and petitioners claim that such a fate awaits Pittsburgh. Pennsylvania argues that if EPA had pursued the "substantial contribution" inquiry, Pennsylvania would get the benefit of upwind states' being forced to share some of burden of achieving ozone attainment in Pittsburgh.

EPA responds that Pennsylvania suffered no prejudice and thus lacks the "injury in fact" necessary to claim Article III standing. *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560 (1992). It claims that had it granted Pennsylvania's petition with regard to Pittsburgh, EPA's modeling methods dictated that it would have found linkages with regard to North Carolina, Ohio, and West Virginia, all states on which EPA has imposed s 126 controls anyway, as a result of its findings as to the Philadelphia area. But Pennsylvania observes that its s 126 petition had sought findings as to the contribution of a number of other upwind states, several of which were not ultimately subjected to s 126 findings. EPA cannot, it argues, deflect judicial review of its refusal to inquire into effects on Pittsburgh simply by filing a brief asserting that, if it had done so, it would have found no more than it did when it focused on Philadelphia. If EPA's ground for refusing to crunch the data for Pittsburgh is illegal, Pennsylvania has been wrongly denied potential benefits. Thus Pennsylvania asserts a real injury that the court could redress. See *Lujan*, 504 U.S. at 560-61.

While Pennsylvania wins on the standing argument, it loses on the merits. EPA observes that s 110(a)(2)(D)(i) speaks simply of emissions that "contribute significantly to nonattainment ... in any other State," with no language suggesting, as the Act does in a number of places, that formal designation or reclassification is critical. See 42 U.S.C. s 7407(d)(1)(A) (allowing EPA to require state governors to supply EPA with a list designating areas as "attainment" or "nonattainment"); s 7502 (framework for setting deadlines and plans for areas deemed "nonattainment"); s 7511(b)(2) (procedures for reclassifying areas that fail to meet attainment deadlines). It seems reasonable for EPA to refrain from investigating whether upwind emissions "significantly contribute" to nonattainment that, according to evidently undisputed data, does not exist, rather than to march forward on the basis of a formal classification that it believed to be outdated and was in the process of revoking. (In reaching this conclusion we express no opinion on the issue that intervenors Appalachian Power et al. tell us is raised in D.C. Cir. No. 00-1223, namely,

whether EPA may make significant contribution determinations for areas that have never been formally classified as nonattainment.).

Developments in the Pittsburgh area after the close of the present rulemaking record of course cannot be a basis for faulting EPA's decision on that record. Nor did its January 2000 decision, converting its May 1999 technical determinations into formal findings (without, as originally contemplated, conditioning such findings on the failure of the SIP process), require a reopening. Pennsylvania may, of course, use later developments as the basis for another s 126 petition.

Pennsylvania further argues that in light of EPA's reinstatement of the 1-hour ambient standard, it should have addressed the "interfere with maintenance" portion of Pennsylvania's petition. Here too EPA was reasonable. Because the EPA policy in May 1999 was to supplant the 1-hour standard with the 8-hour standard as soon as an area met the 1-hour standard, it made sense to decline all petitions seeking findings of interference with maintaining the 1-hour standard; there was then every reason to suppose that such findings would almost immediately become obsolete. Once again, Pennsylvania can respond to later developments by submitting another s 126 petition.

VI. CONCLUSION

In summary, we remand the rules to the EPA to allow the agency to (1) properly justify either the current or a new set of EGU utilization growth factors to be used in estimating utilization in 2007, and (2) either alter or properly justify its categorization of cogenerators that sell electricity to the electric grid as EGUs. With respect to all other issues, including those not discussed expressly herein, the petitions are denied.

So ordered.